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BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of Application No. 96-1) NO. _____
Olympic Pipeline Company) PREFILED TESTIMONY OF RHYS ROTH
Cross Cascade Pipeline Project) ISSUE: PURPOSE AND NEED
) SPONSOR: WASHINGTON ENVIRONMENTAL
) COUNCIL

Q. Please state your name and employment position.

A. My name is Rhys Roth. I am the Executive Director of the Atmosphere Alliance. My business address is 610 E 4th Avenue, Olympia, Washington 98501.

Q. What is your educational and employment background?

I received a B.A. degree in environmental science from the Evergreen State College in 1987. I received a Masters in Environmental Studies degree from the Evergreen State College in 1990. I have been employed in energy and natural resources conservation positions for the past decade. I worked in, and then managed the solid waste program for the Thurston County Health Department from 1989 – 1991. From 1992 – 1996 I served as the lead contractor for the Energy Outreach Center of Olympia on a variety of resource conservation and transportation projects and publications. Since 1996 I have been employed as the Executive Director of the Atmosphere Alliance.

1 **Q. What topics will your testimony cover?**

2 A. My testimony will explain why this project is not needed. Specifically I will cover two topics.
3 First, I will explain that Olympic's projection of a 1.5% annual increase in demand for the refined products
4 to be transported in the proposed pipeline is unreliable because it completely ignores dramatic changes that
5 are about to occur in the automobile industry relating to fuel efficiency and fuel type.
6 Second, I will explain how this project is directly contrary to state and federal policies relating to
7 transportation fuel efficiency improvements and global warming reduction.

8 **Q. Please briefly describe the mission and function of the Atmosphere Alliance, and your responsibilities**
9 **there.**

10 A. The mission of the Atmosphere Alliance is to make the Pacific Northwest a world leader in practical and
11 profitable solutions to global warming. The Alliance conducts research, produces periodic and aperiodic
12 publications, sponsors educational forums, and engages in other activities designed to educate the public
13 and policy makers on the causes and impacts of global climate change. Among our other activities, we
14 actively monitor and disseminate the most current information available from national and international
15 news services concerning climate change and emergent technologies. As Executive Director, my
16 responsibilities include research and publication, representing the Alliance at conferences and symposia,
17 serving as lead spokesperson, strategic planning, implementing programs, and overall management of the
18 organization.

19 **Q. What specific activities and experiences, professional or otherwise, qualify you as an expert in the**
20 **topics concerning which you are offering testimony.**

21 A. My job requires that I read extensively to remain current on issues relating to global climate change,
22 including transportation issues, alternatives to fossil fuels, and emerging technologies. As Executive
23 Director of the Atmosphere Alliance, I have attended numerous workshops, conferences and symposia
24 dealing with global warming, fuel efficiency and emergent technologies, including the Third Conference of
25 the Parties to the International Framework Convention on Climate Change in Kyoto in 1997 and the Fourth
Conference of the Parties to the International Framework Convention on Climate Change in Buenos Aires

1 in 1998. I have made numerous presentations on climate change and fossil fuel consumption, including a
2 presentation at the Buenos Aires Conference on emerging technologies and alternatives to fossil fuels.

3
4 I am a member of the Board of Directors, the Executive Board, and serve as the elected Chair of the
5 Washington Caucus of the Northwest Energy Coalition. The Coalition is comprised of over eighty
6 organizations and businesses, including such diverse entities as the League of Women Voters, Spokane
7 Neighborhood Action Program, the Sierra Club, Seattle City Light, Snohomish County PUD, Puget Sound
8 Energy, and Washington Water Power (now Avista Utilities).

9
10
11 I have authored or co-authored several publications on the atmospheric crisis and its solutions, including
12 fuel consumption, fuel efficiency and emergent technologies in the transportation sector. These
13 publications include:

- 14 • My 286 page Master's thesis: The Theory and Evidence of the Greenhouse Effect: Implications for
15 Climate, Nature, and Democracy.
- 16 • The Kyoto Conference and the Future of the Earth's Climate
- 17 • Global Warming is Here: The Scientific Evidence
- 18 • How the Northwest Can Lead a Clean Energy Revolution (editor)
- 19 • Life Support!: A Citizen's Guide to Solving the Atmospheric Crisis
- 20 • Global Warming and the Pacific Northwest: vulnerabilities to climate change
- 21 • Hazardous Handouts: Taxpayer Subsidies for Environmental Degradation ("Cars" section)
- 22 • Redevelopment for Livable Communities
- 23 • Getting People Walking: Municipal Strategies to Increase Pedestrian Travel
- 24 • Green Jobs for Olympia: A Community-Based, Multi-Resource Conservation Program
- 25 • No Sweat News (The monthly newsletter of the Atmosphere Alliance)

1 I have also conducted research on transportation related consumption of fossil fuels for numerous
2 campaigns I have organized to encourage less car-dependent and more energy-efficient modes of
3 transportation, such as the Energy Outreach Center's "Oil Smart" campaign.
4

5 **Q. In general, how did you develop the testimony you are now presenting to the Energy Facility Site**
6 **Evaluation Council?**

7 A. I have been following the proposal for this project for over a year. During 1998 I reviewed portions of the
8 Draft Environmental Impact Statement and submitted comments on the DEIS on behalf of the Atmosphere
9 Alliance. I reviewed my own comments on the DEIS (Exhibit # RR 1), as well as those of Mr. Doug
10 Howell, a transportation expert who is employed by the Environmental and Energy Study Institute and is a
11 member of the Alternative Fuels and Energy Committees of the National Academy of Sciences
12 Transportation Research Board (see Exhibits # RR 2, RR 3, and RR 4). It is my understanding that Mr.
13 Howell was considering serving as an expert in this proceeding, but may not be available due to
14 complications in the birth of his son. I am in complete agreement with Mr. Howell regarding the lack of
15 need for the pipeline and the inadequacy of the evaluation of alternatives, including demand-side
16 management, and I hereby adopt Mr. Howell's December 17, 1998 comment letter on the DEIS as my own
17 testimony for the purposes of this proceeding. I also reviewed a number of recent articles and news reports
18 regarding emerging technologies in the automobile industry related to fuel efficiency and alternative fuels.
19 I also refamiliarized myself with Washington's 1995 State Energy Strategy.
20

21 **Q. Do you agree with Olympic's projection of a 1.5% annual increase in demand for refined oil**
22 **products in eastern Washington for the next 30 years?**

23 A. I strongly disagree with Olympic's projection of a 1.5% annual increase in demand over the next thirty
24 years. Indeed, I believe that demand for gasoline and diesel will begin to decrease significantly during the
25 next twenty to thirty years. As I indicated in my comment letter on the DEIS, I believe Olympic has failed
to account for historic annual swings, including some decreases during this decade, in demand in eastern

1 Washington, and has failed to produce an analysis supporting it's projection of a 1.5% annual increase for
2 30 years. More significantly, because Olympic fails to analyze the implications of forthcoming
3 fundamental changes in motor vehicle technology, its demand forecast is inherently flawed. There is
4 growing sentiment among industry experts, such as General Motors Chairman Jack Smith, that the
5 gasoline-powered internal combustion engine will be phased out in the next twenty to thirty years, making
6 this pipeline obsolete.

7
8
9 Olympic's straight-line projection of 1.5% annual increase in demand is terribly reminiscent of the
10 Washington Public Power Supply System's flawed projections for never ending electric energy demand in
11 the 70s and 80s. New technologies, demand side management, and elasticity of demand in response to
12 price increases and interruptions of supply due to national and international actions and events are not close
13 to adequately addressed. We must not repeat the mistake we made with WPPSS.

14
15 **Q. Do you believe there will be a need for the pipeline beyond the thirty year forecast Olympic has**
16 **provided?**

17 A. As I said above, I do not believe Olympic has demonstrated that this project will be needed in its first thirty
18 years. Technological changes in the auto industry make Olympic's demand projection highly suspect.
19 Even if one were to concede that Olympic's 30 year forecast is accurate, which I certainly don't, it would
20 still not justify this project, because even if the predicted changes in the automobile industry do not occur
21 within 20 to 30 years, they are certain to occur during the "useful life" of the project, rendering it obsolete.
22 Even ARCO Chairman and CEO Mike Bowlin was recently quoted as saying that the world is entering "the
23 last days of the Age of Oil," and that the 21st Century will bring a dramatic new look to the U.S. energy
24 industry, with cleaner-burning natural gas and renewable motor fuels playing decisive roles in the energy
25 mix of the future. (Exhibit # RR 5) Thus, regardless of the near-term rationalizations for this project, over

1 the long-term, it is clear that this pipeline will become obsolete long before its intended lifetime, leaving
2 behind yet another monument to short sighted planning placing profit ahead of protecting public resources.

3
4 **Q. Can you describe some of the changes occurring in the auto industry that relate to Olympic's**
5 **forecast and the purported need, or lack of need for this project?**

6 A. There are emerging technologies in both motors and materials that are likely to dramatically increase motor
7 vehicle fuel efficiency, and therefore reduce the consumption of refined oil products in the very near future.
8 It is these emerging technologies that have led industry experts such as GM Chairman Jack Smith to predict
9 the "slow phase-off" of the internal combustion engine over the next 20 – 30 years, as reported in the
10 Chicago Tribune and other major publications. (Exhibit # RR 6, p. 1) In response to the threat of global
11 warming, the reality of urban air pollution, and the desirability of capturing new markets where gasoline
12 costs far more than it does in the U.S., the automobile industry is committing billions of dollars in an
13 intense competition to increase efficiency, lower emissions, and ultimately replace the internal combustion
14 engine. Since Olympic's proposed Cross Cascade pipeline is designed primarily to carry motor vehicle
15 fuels, it would be imprudent and irresponsible to fail to assess these developments in the motor vehicle
16 industry. And while it is not directly within my area of expertise, I would note that there are similar trends
17 towards increased fuel efficiency in aircraft, and of course aircraft fuel is the other product that could be
18 shipped through the proposed pipeline.

19
20 **Q. Please describe these emerging motor technologies in the motor vehicle industry.**

21 A. There are three basic technologies that will compete with, and ultimately displace the internal combustion
22 engine. These are battery-powered vehicles, so called "hybrid vehicles," and fuel cell powered vehicles.

23
24 Battery powered vehicles run exclusively on an electric motor fueled by batteries. Battery powered
25 vehicles use no petroleum based fuel whatsoever. The primary drawbacks of this technology are that the
batteries are still relatively bulky, the technology remains expensive, and the vehicles have a limited range

1 between recharging. However, the size of the battery packs have been reduced dramatically in recent years.
2 The price is coming down and will continue to drop as the technology improves and the vehicles are put
3 into mass production. The range issue is being addressed both through the increasing availability of
4 charging stations and the recognition that to some degree these are niche vehicles, best suited for
5 commercial fleets and urban and suburban environments most trips are short and recharging opportunities
6 plentiful. Since battery powered vehicles emit no air pollutants, they are also likely to find markets in areas
7 where air quality is a concern. The U.S. Postal Service is seeking bids on 6,000 electric mail delivery
8 vehicles – a perfect application for this technology. GM's EV1 is an example of a battery-powered car that
9 is currently being test marketed in the United States. The EV1 is easily recharged from any 220-volt
10 outlet, but must be recharged every 60 to 70 miles. At a recent auto show in Tokyo, GM showed a new
11 battery powered vehicle with a range of 160 miles. Ford has recently purchased a Norwegian company that
12 produces a battery powered city commuter car that reportedly can be charged from any household outlet in
13 6 – 8 hours with a range of 50 to 60 miles which Ford will begin to market in the U.S. in 2000.

14
15 Hybrid vehicles use a combination of an internal combustion engine and batteries to dramatically reduce
16 fuel consumption. Unlike an exclusively battery powered vehicle, a hybrid vehicle never needs to be
17 plugged in to recharge the batteries. Instead, during deceleration and braking, the motor functions as a
18 generator and recharges the batteries. Thus, hybrid vehicles do not suffer from the range limitations of
19 battery only vehicles. In September, the U.S. EPA tested the hybrid Toyota Prius. The Prius gets 66 miles
20 per gallon in Japan where it is optimized for stop and go urban traffic. A Japan-optimized version got 50
21 m.p.g. in the EPA's mixed city and highway test. Once retooled for U.S. driving habits and highways, the
22 Prius is expected to average 60 m.p.h. highway and city – approximately double the mileage of internal
23 combustion driven vehicles in its class. Chrysler Corporation has developed a hybrid Dodge Intrepid that
24 gets 70 m.p.g. GM is planning to introduce its own hybrid by 2001 that will get up to 80 m.p.g. GM is
25 also preparing to deliver a hybrid powered bus to New York City early in 1999 which is expected to use
40% less fuel than conventional diesel buses. The L.A. Times reported in December that United Parcel

1 Service will begin testing a hybrid powered delivery truck that could cut fuel consumption in half. These
2 efficiencies will become even greater as battery technology improves and we develop more experience with
3 optimizing the hybrid performance.

4
5 The third, and most revolutionary, of the emerging motor technologies is the fuel cell. A fuel cell is an
6 electrochemical device that produces electricity without combustion. The fuel cell produces electricity to
7 power the vehicle through an electrochemical process in which oxygen from the air is combined with
8 hydrogen fuel, which can be obtained from natural gas or methanol. Heat and pure water vapor are the
9 only by-products. The biggest obstacles to mass production of fuel cell vehicles at this point in time are the
10 cost of production and developing refueling technology. Nevertheless, The Chicago Transit Authority has
11 been using three fuel cell powered buses for over a year and B.C. Transit was scheduled to begin testing
12 three fuel cell powered buses in 1998. Mercedes-Benz has developed a prototype fuel cell A-class vehicle.
13 The Chicago Tribune has reported that GM, Ford, and Mercedes are each planning to produce fuel cell
14 vehicles by 2005. (Exhibit # RR 6) Both the fuel cell and hybrid vehicle technologies were reported in the
15 front-page story of the Nov. 23, 1998 issue of Newsweek magazine. (Exhibit # RR 7)

16
17 **Q. What are the emergent materials technologies you mentioned earlier?**

18 A. Engineers are exploring the use of lightweight materials such as titanium, magnesium, aluminum,
19 fiberglass, and plastics to replace heavier materials while maintaining vehicle safety. By cutting down on
20 the overall weight of the vehicle, fuel efficiency can be dramatically increased. Better utilization of both
21 these new materials and traditional materials through designs that reduce angles and irregular surfaces,
22 thereby reducing wind resistance and drag, has also been contributing to improved fuel efficiency. For
23 example, Ford has a prototype, the P2000, which is 40% lighter than a Taurus and gets 63 m.p.g. with an
24 internal combustion engine.

1 **Q. You've been describing a lot of high-tech prototypes and test vehicles. Will any significant number**
2 **of these vehicles be mass produced and on the road during the life of the proposed Cross Cascade**
3 **pipe line?**

4 A. Yes, many of these vehicles are either currently being marketed or are scheduled to go into mass
5 production in the next 5 to 6 years. Toyota's hybrid 66 m.p.g. Prius is already being mass produced in
6 Japan and will be introduced in the U.S. in the next year or two. GM has stated it will match or better the
7 Prius by introducing its own hybrid by 2001. Honda has announced it will start selling a hybrid in the U.S.
8 in 2000. The Ford/Daimler/Ballard alliance has announced a goal of jointly producing 100,000 hybrid cars
9 per year by 2004. Ford has announced it will start selling the battery powered "Think" in the U.S. in 2000.
10 GM's battery powered EV-1 is in production, and while sales have been disappointing, reports are that
11 lessees are very happy with it. With GM on the verge of producing a successor battery powered car with
12 twice the range capable of carrying 4 passengers, and California requiring that 10% of new car sales in
13 2003 be nonpolluting, sales of battery powered cars should increase dramatically. With California
14 stimulating mass production, marketing, and consumer familiarity, prices are likely to decline and sales
15 increase nationwide

16
17 **Q. Are there any state or federal laws or policies that will affect the production of these high efficiency**
18 **motor vehicles you've been describing?**

19 A. Certainly. California has passed a law that will require that 10% of all new cars sold in that state in 2003
20 be nonpolluting. That will create a huge market for battery-powered cars. In the state of Washington, State
21 Representative John Pennington has introduced a bill that would provide an exemption from the state sales
22 tax for battery powered and hybrid vehicles. A federal tax credit has also been proposed for purchasers of
23 vehicles getting 80 m.p.g. or better. Perhaps most importantly, the federal government has already created
24 the Partnership for a New Generation of Vehicles (PNGV) in which the U.S. government has committed
25 nearly \$2 billion in partnership with the private sector to speed the development of these technologies.

(Exhibit # RR 3, p.1)

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3 The Federal Clean Air Act will also be a major driver of these technologies, since in addition to consuming
4 far less fuel, battery powered, hybrid and fuel cell vehicles emit far less pollutants, and in some cases zero
5 of the pollutants, that are causing areas to violate Clean Air standards. A central goal of the federal Energy
6 Policy Act of 1992 is to reduce annual motor vehicle petroleum consumption by 30% by the year 2010.
7 (Exhibit # RR 3, p.1) And though it still awaits Senate ratification and detailed implementation plans, the
8 U.S. has also signed the international climate change agreement calling for a 7% reduction in greenhouse
9 gas emissions below 1990 levels by 2012. Carbon taxes, carbon trading credits, stricter Corporate Average
10 Fuel Efficiency (CAFE) standards, and other mechanisms to meet the targets in the Energy Policy Act and
11 international climate change agreement are likely to either mandate or provide additional strong incentives
12 for dramatic improvements in motor vehicle fuel efficiency and alternative fuels.
13
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15 **Q. Can you put automobile emissions in the context of the overall global climate change issue?**

16 A. The U.S. Environmental Protection Agency has reported that U.S. automobile emissions are the fastest
17 growing source of greenhouse gases and that U.S. passenger cars and light trucks already emit more
18 greenhouse gases than total emissions from all but three countries.
19
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21 **Q. Do you find the proposed pipeline project to be in accord with current public policy?**

22 A. The proposed pipeline is directly contrary to public policy related to the use of fossil fuels. As I've
23 discussed above, the federal government has passed legislation and signed an international treaty which
24 commit this nation to finding ways to reduce green house emissions from fossil fuels. Large reductions in
25 emissions of green house gases as well as other pollutants targeted by national policy and law can be
achieved in the transportation sector. The federal government and the automobile industry are

1 spending billions of dollars in partnerships designed to dramatically reduce consumption of refined oil
2 products in the transportation sector. In addition, the state of Washington adopted a state energy strategy in
3 1995. (Exhibit # RR 8) The state energy strategy for the transportation sector does not include developing
4 a cross-cascade pipeline – instead it calls for changing travel habits, developing substitutes for
5 transportation, using alternative to petroleum fuels, and improving the efficiency of freight and vehicle
6 transportation. (Exhibit # RR 8, p. 2) The proposed Cross-Cascade pipeline is contrary to each of these
7 important public policies and initiatives.
8

9 I declare under penalty of perjury, under the laws of the State of Washington, that the foregoing is true and correct to
10 the best of my knowledge

11 Dated this 11th day of February, 1999

12 By: _____
13 RHYS ROTH
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